

2007 South Dakota State University Combined Research and Extension Annual Report

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I. Report Overview

1. Executive Summary

The South Dakota State University (SDSU) College of Agriculture and Biological Sciences (ABS) is comprised of the South Dakota Agricultural Experiment Station (AES), South Dakota Cooperative Extension Service (CES), and AgBio Academic Programs (AP). The SDSU College of Family and Consumer Sciences (FCS) is actively involved in programs conducted with AES and CES. This institution serves South Dakota and the Northern Great Plains, and through cooperative arrangements conducts programs that impact the nation and world.

The population of South Dakota is ranked 46th in the nation, with an estimated 775,933 people (2005 Census Estimate). By 2010, the state population is projected to stand at 786,399. The state population is not projected to exceed 800,000 people until 2020.

One-third of the population is found in the two largest counties, and 44 percent of the population is found in the five largest counties. The largest counties also have the most active growth in population, income and economic development. Minnehaha County alone has 20 percent of the state's population. Lincoln County is ranked as the fifth fastest growing county in the nation. The remaining 60 counties have lower levels of population growth, and pervasive levels of poverty. The U.S. Census of 2000 classified South Dakota as 51.92 percent urban, 7.72 percent rural-farm, and 40.36 percent rural-non-farm.

Poverty is particularly high on the Native American reservations in the state. Historically, between 12 and 16 percent of South Dakota's population ranks below the poverty level, and in 2003 the number was estimated to be 12.3 percent. The U.S. Department of Agriculture's Economic Research Service reports that in 2003, the average annual income in South Dakota was \$28,856. In 2004, 10 counties had poverty rates over 20%, ranging from Ziebach County's 39.4% to Charles Mix' 22.4%. Thirty-seven of South Dakota's 66 counties had poverty rates below the U.S. average, ranging from Lawrence at 12.6% to Lincoln at 4.8%.

Statewide unemployment is consistently in the three to four percent range, and was at 3.5 percent in 2004. This indicates that most citizens are employed, but do not have high paying jobs. One result is that most families have two wage earners, in some cases each wage earner holds more than one job. These factors set the stage for out-migration from South Dakota to other places that are perceived to have job opportunities with higher income. Recently, this out-migration has slowed, and reversed in the 30-40 year old category as they return to South Dakota. Quality of family life issues are listed as key reasons for these people to return to their home state.

South Dakota has eight Native American reservations. The Native American population represents approximately eight percent of the total state population. Three of the counties with reservations have been listed among the ten poorest counties in the United States. Five of the ten poorest counties in the nation are in South Dakota, meaning that poverty is not just a problem in reservation counties. Unemployment, alcoholism, poor diet, obesity, diabetes and other health and social problems are prevalent in reservation areas with high poverty rates.

South Dakota State University has developed working agreements with the four 1994 Land Grant Institutions located in South Dakota, and is continuing to offer programs that address these social and economic needs.

The South Dakota Agricultural Experiment Station has research facilities at eight primary locations within the state. Most of the scientists are located at the main campus in Brookings, but they conduct research throughout the state. Scientists, and Extension specialists, are also located at the SDSU West River Ag Center at Rapid City. The West River Center serves as the primary host for integrated CES and AES programs west of the Missouri River. Research project leaders are also located at the Dakota Lakes Research Farm near Pierre, in central South Dakota, and at the Southeast South Dakota Research Farm near Beresford. Both of these research farms also feature strong Extension educational components. Both farms focus on farming systems research, with no-till technology and irrigation being emphasized at Dakota Lakes and diversification of corn/soybean rotations and livestock feeding being emphasized at the Southeast Farm. A new research station has just opened in east central South Dakota, with an emphasis on livestock production and natural resource management.

There are four research farms that are continuously staffed with support personnel. The AES scientists from Brookings and Rapid City conduct research at these stations; however, project leaders are not permanently located there. Crop production research is conducted at the Northeast Research Station near Watertown and at the Central Crops and Soils Research Station

near Highmore. Neither of these stations are irrigated. Beef, sheep, and range research is conducted at the Antelope Station near Buffalo in Northwestern SD and at the Cottonwood Station in the West-Central part of the state. AES and CES staff work cooperatively to offer educational field days at each station.

There are also several locations where AES research is conducted on cooperating stakeholder property. These cooperative arrangements greatly augment our research capabilities and provide direct linkages with many of our rural stakeholders.

In addition to research conducted by AES scientists, the Cooperative Extension Service is also doing on-farm research across South Dakota. This takes the form of demonstration projects, interpretation of AES research, and helping to transfer information from the scientist to the agricultural user. Each year, more than 40,000 Extension field demonstration plots across South Dakota provide farmers with direct access to applied research data specific to their local conditions.

The Cooperative Extension Service has offices located in 65 South Dakota Counties and two Native American Reservations. An individual Memorandum of Agreement with each county documents the relationships, and establishes County Extension Advisory Boards. At the Field Education Unit level, county representatives of these boards provide input on programming efforts. The combined presence of Agricultural Experiment Station Research Farms and County Extension Offices across the state means that the South Dakota State University College of Agriculture and Biological Sciences is uniquely able to deliver educational services and meet the needs of the people of South Dakota.

Research and Extension programs provide the knowledge base for agricultural growth and economic development in South Dakota. Agriculture remains a major contributor to the economic health of the state, with a \$19.2 billion in annual economic impact in 2007. This year, agriculture employed 150,459 people, and contributed \$593,333,046 in tax revenues to the state. In addition, each dollar of revenue generated in the state creates another \$1.099 in additional economic activity. Seventy-four percent of all farms earn less than \$100,000 per year, while 24% earn between \$100,000 and \$499,999 each year. Two percent earned \$500,000 or more. This indicates there are two types of agriculture being conducted in South Dakota: large-scale and small-scale agriculture. Currently, there are 31,600 farms with an average size of 1,386 acres.

AGRICULTURAL EXPERIMENT STATION

SDSU is recognized by the Carnegie Foundation for the Advancement of Teaching as the state's only research university/high research activity institution. This prestigious ranking recognizes the growth of doctoral programs, degrees granted, and competitive funds obtained.

The ABS College has identified five multidisciplinary areas of excellence, involving research, teaching and extension efforts. These areas extend beyond the ABS College to the Colleges of Engineering, and Family and Consumer Science. The grants and contracts received in these areas comprise 66 percent of all SDSU grants and contracts. These include:

1) Biorenewable economic development

Research in this area focuses on new technologies for processing plant-derived materials into biomaterials such as ethanol. SDSU has developed a vibrant biofuels research group with projects which include: an analysis of the biomass potential of switchgrass; genetic mapping of prairie cord grass for cellulosic ethanol, development of pretreatment strategies for bioconversion processes; and, using space technology to develop maps showing potential biomass feedstock supplies. This research will help our nation reduce its dependence on foreign petroleum, while also reducing greenhouse gases. SDSU, in conjunction with the South Dakota School of Mines and Technology, is home to the Governor's 2010 Center for Bioprocessing Research and Development, as well as the federally funded Sun Grant program.

2) Applied genome technology solutions

SDSU applies genome technology to crop variety development, helping plant scientists locate genes that express resistance or tolerance to various stresses, which ultimately impact yield. Genome technology assists in the development of optimal seed composition traits. SDSU is home to the Governor's 2010 Center for Drought Tolerance Biotechnology. SDSU will also be an active participant in the Sanford Underground Science and Engineering Lab at the former Homestake Mine in Lead, S.D. SDSU scientists lead national research efforts in the field of biological mechanisms involving plant dormancy. One project funded by the National Science Foundation examines the biological mechanisms involved when grapes enter or break dormancy. This research will result in advances in selecting and breeding grapes for different climates, as well as improved practices for managing dormancy in existing grape cultivars. This research supports U.S. grape production, and South Dakota's growing wine industry.

3) Natural resource stewardship

SDSU scientists work to promote biodiversity and sustainability of natural resources, assuring that South Dakota communities, businesses, agriculture and wildlife can co-exist. Research includes: utilization of dried distillers grains with - game management decisions; and, reduction of agricultural field depredation by wildlife. SDSU scientists are internationally recognized

leaders in the study of climate change and land use on biodiversity in the Prairie Pothole region of the Great Plains. This area supports more than 50 percent of North American migratory waterfowl.

4) Community innovation and leadership

Since SDSU was founded 126 years ago, the ABS College and FCS College have fostered economic development through applied research projects and Extension programs that meet local needs. Today, this commitment has been formalized through the establishment of the Community Innovation and Leadership Area of Emphasis with Cooperative Extension. SDSU promotes community sustainability and social capital expansion through green technology, ecology and sustainable design. This approach integrates entrepreneurship, marketing, and leadership development into classroom and outreach programs.

5) Enhancing economic development of grain/livestock/food systems

SDSU scientists conduct research that enhances the efficiency of food production and farming systems, enhances value-added product opportunities, and maintains food safety and consumer acceptance. Science has helped maintain the consumer confidence in American agriculture. Today, 90% of consumers remain confident that U.S. beef is safe, even following the discovery of BSE in 2003. Beef checkoff-funded food safety interventions helped reduce the number of ground beef samples testing positive for E. coli O157:H7 by more than 80% from 2000 to 2006. SDSU is home to the Governor's 2010 Center for Infectious Disease Research and Vaccinology. Scientists are studying food animal infectious disease, especially diseases of cattle, swine, sheep and poultry. Specific research programs are ongoing relative to enterotoxigenic E. coli, E. coli O157H7, Salmonella, BVD virus, PRRS virus, Avian Influenza, Johne's disease, and Chronic Wasting Disease. In addition, SDSU scientists are studying the action mechanism of a new HIV drug. This research is funded by the National Institutes of Health. SDSU is a member of two major national diagnostic networks. The Food Emergency Response Network (FERN) and the National Animal Health Laboratory Network (NAHLN). Both networks promote animal health via improved testing techniques and strategic surveillance and response activities.

COOPERATIVE EXTENSION SERVICE

Extension offers educational programs in agriculture and natural resources, youth development/4-H, family and consumer sciences, and a new area – community innovation and leadership.

SD 4-H Market Share Tops North Central Region – Participation in 4-H programming in South Dakota reflects the greatest market share growth of any state in the North Central Region. From 1992 to 2002, an additional 27% of 4-H age-youth participated in the program, bringing 4-H/youth market share to 41.1%. 4-H participation has continued to grow to the current level of 10,501.

The percentage of South Dakota youth served by 4-H has increased 17.6 percent in 2006, the percentage of all state youth enrolled in 4-H or other similar programs offered by SDSU has increased 16.6 percent. In 2006, 70,473 young people participated in six hours or more of Cooperative Extension sponsored instruction.

Across the state, 4-H members exhibit a spirit of volunteerism that holds great promise for South Dakota. In western South Dakota, 769 young people participated in community service activities that included: organizing food drives for local food pantries, cleaning miles of road ditches and community parks, replacing fences and clearing trees at a country cemetery, repairing and painting local fairgrounds, major renovation of a community ball field, assisting, collecting eye glasses for the Lion's Club, and many other activities.

Extension is one of the first agencies to respond to natural disasters. After major flooding in May along the James River Valley in north central South Dakota, specifically in the Aberdeen and Brown County area, the Cooperative Extension Service activated a flood response task force which prepared and distributed more than 100,000 publications providing information to help people safely and thoroughly clean their homes, clothing and other possessions. 4-H Clubs from 34 South Dakota counties collected cleaning supplies for "Flood Buckets." Working with the South Dakota Red Cross and South Dakota Broadcasters Association, these 4-H Flood Buckets were brought from across South Dakota to help clean-up efforts in Aberdeen.

In the aftermath of the Alabaugh Wildfire, which burned more than 10,000 acres near Hot Springs in July, the Cooperative Extension Service prepared and distributed several one-page publications on specific areas of fire recovery, including: dealing with power outages, disinfecting household items, and salvaging feed and farm building.

South Dakota has one of the highest percentages of working parents in the nation, making after school care and activities for children a critical need. That need is compounded in smaller communities. The Hand County Extension Office worked with community leaders and the State Department of Child Care Services to create the Rustler Roost, an Out of School Time Program for young people in grades K-6. It provides a safe environment for children that is rich in opportunities for personal and intellectual growth. The Rustler Roost program is governed by a local board of volunteers, and has become a self-sufficient

non-profit business corporation.

The State Department of Health reports that South Dakota has a higher incidence of food borne illness than any of our neighboring states. South Dakota childcare settings have experienced dramatic increases (500+%) in Shigellosis twice in the last 6 years. To address this growing concern, South Dakota law requires that all licensed food service establishments have at least one person that is certified in Food Manager Sanitation. Extension offers the ServSafe® food safety training in rural areas, leading to national certification. In Rapid City, Pierre, Aberdeen, Watertown and Sioux Falls, the South Dakota Retailers Association conducts the training. The National Restaurant Association (NRA) has estimated that the average cost of a food borne illness outbreak to an establishment is about \$75,000 due to loss of business and respect and increased insurance premiums. SDSU offered food safety training to 48 restaurants. At \$75,000 per food service facility, this represents \$3.6 million in savings from prevented food illnesses.

Two-thirds of American adults are overweight. Treating obesity-related health conditions costs \$39 billion each year. Extension has worked in all South Dakota counties to teach how to live healthier, while simultaneously curbing costs associated with unhealthy habits. In one county, a physician conducting employee health screenings noted that many patients were realizing improvements within 6 months. "Patients are amazed that even with little exercise 1-3 times a week, it improves health scores."

Winter wheat is the backbone of crop production in south central and south western South Dakota. The 2007 growing season had optimum conditions for the development of wheat diseases. To help prevent crop disease problems later in the season, Extension Educators offered crop production clinics which targeted disease issues. Producers who implemented Extension recommendations reported a 15 to 30 bushel yield increase per acre, compared to fields that were not treated. At \$7.00 per bushel, Extension recommendations resulted in a \$105-\$210 increase in income per acre.

Drought conditions persist in western parts of South Dakota. Ranchers in drought areas face the on-going challenge of feeding low quality forage, and dealing with dams that have very little or low quality water. Some ranches encountered livestock death losses of 3% or more from bad water alone. In Jones County, Extension Educators worked with ranchers to test water for Total Dissolved Solids, an indicator of livestock water quality. When water quality problems were identified, ranchers immediately moved their entire herds to other locations. These preventative measures helped ranchers avoid a 3% death loss, saving \$54,000 in death losses.

This integrated Annual Report is a summary of the College's activities for Federal Fiscal Year 2007, as required by the Agriculture Research, Extension, and Education Reform Act of 1998 (AREERA). This annual report summarizes programs that are built on substantial stakeholder input from all segments of South Dakota.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	175.0	0.0	200.0	0.0
Actual	158.8	0.0	136.8	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel
- External Non-University Panel
- Expert Peer Review

2. Brief Explanation

All AES research projects are subjected to peer and merit review prior to implementation. During this reporting period, this included 36 Hatch-funded projects, and 8 Multi-State Hatch projects.

All Hatch and multi-state projects require independent peer reviews from two scientists that are knowledgeable in the respective subject area. The department head or a departmental executive committee identifies peer reviewers. The department head and the AES Director serve as merit reviewers.

A standard review instrument facilitates peer and merit reviews. Reviewers are required to comment on why the proposed research is needed, its relevance to agriculture, the target audience, and how it complements other research. Proposals for research grants that are funded by stakeholder groups are subjected to review by the stakeholders themselves and by college administrators. Much like the CRIS system, stakeholder groups ask for annual progress reports on funded research.

Cooperative Extension Service administrators serve as the merit review team for the respective components of the plan of work. Department heads, specialists and educators conduct peer reviews of programs.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals

Brief Explanation

The South Dakota State University College of Agriculture and Biological Sciences solicited formal stakeholder input in many forms, from many sources, and at many locations. Methods of inviting stakeholder input included meetings or other communication with: Agricultural Experiment Station Research Farm Advisory Boards; Research Review Meetings with agricultural check-off groups including the South Dakota Soybean Research and Promotion Council, South Dakota Corn Utilization Council, South Dakota Beef Industry Council, South Dakota Oilseeds Council, South Dakota Pork Producers Council, South Dakota Wheat Commission, and others.

Input was also sought from state agricultural commodity groups including Ag Unity, the South Dakota Pork Alliance, the South Dakota Stockgrowers/Cattlemen, and the

South Dakota Veterinary Medical Association; and from meetings with organizations that fund research such as the National Institutes of Health, U.S. Department of Energy, National Science Foundation, NASA, Environmental Protection Agency, and the National Centers for Disease Control and Prevention. In addition, stakeholder input was solicited from governmental agencies, including: the Office of the Governor, the South Dakota Department of Agriculture, South Dakota Department of Environment and Natural Resources, South Dakota Game, Fish and Parks, South Dakota Department of Education and Cultural Affairs, Office of the State Veterinarian, Social Services, Job Service, National Agricultural Statistics Service, 1994 Institutions, and others.

In addition, stakeholder input was sought at SDSU field day tours; SDSU agricultural meetings; Community Leader Meetings throughout the state; meetings with the South Dakota Board of Regents, South Dakota Legislature, and other elected officials and boards; and events open to the public such as the South Dakota State Fair and DakotaFest. Additional input was solicited during comprehensive CSREES Departmental and Institutional Reviews, which span teaching, research and Extension activities.

Stakeholder input specifically for projects involving McIntire-Stennis funds was sought from the South Dakota Nurseryman's Association, the South Dakota Parks and Recreation Association, the U.S. Forest Service, and also from special project-oriented groups.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief Explanation

County Extension Advisory Boards are required by South Dakota law, and provide citizen input, guidance, and direction for county programming that target priority needs and issues, and are appointed by County Commissioners. Membership on this board is required by state statute to represent the racial population mix of the county and of the various interest groups served by Extension.

The State Extension Advisory Board provides guidance and direction to the Cooperative Extension Service, and informally to the Agricultural Experiment Station. Members of this board are elected from each County Extension Advisory Board, and the 1994 land grant institutions.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)
- Survey specifically with non-traditional groups

Brief Explanation

Stakeholder input is directed across the broad scope of the College of Agriculture and Biological Sciences and to activities supported by Smith Lever, Hatch, McIntire-Stennis, and other funds. Stakeholder input was not directed exclusively to the Cooperative Extension Service or Agricultural Experiment Station. The multidisciplinary input system used a variety of techniques that included: direct input, brainstorming, surveys and questionnaires, nominal group technique and other appropriate methods.

3. A statement of how the input was considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- To Set Priorities

Brief Explanation

Administrators evaluated all requests and comments from stakeholders to determine if clear patterns of needs exist, and if resources can be directed to the client requests. CES educators, specialists, and AES scientists actively sought out input to insure that research and education programs are fine-tuned to the current needs of stakeholders.

Brief Explanation of what you learned from your Stakeholders

Land grant universities have traditionally been known for rural development efforts. In response to stakeholder requests over the past decade, the South Dakota Cooperative Extension Service has offered an increasing amount of community and economic development programs. Starting in this reporting period, Cooperative Extension has added Community Innovation and Leadership as a formal educational program area. Working in cooperation with the Northwest Area Foundation, Extension has helped more than 1,200 South Dakotans in the Horizons project to design action projects for their communities. Community projects to date have included resale resource shops, community-wide clean-ups, and free family events for entire communities. Since 2005, three Horizons pilot towns of Timber Lake, Isabel and Dupree have garnered \$576,000 in grants, hired a tri-community economic developer, developed a high-speed internet service, initiated youth leadership development programs, sponsored environmental projects, and initiated other community-wide economic development efforts.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3328354	0	4315649	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	3561125	0	2794899	0
Actual Matching	3561125	0	2794900	0
Actual All Other	0	0	0	0
Total Actual Expended	7122250	0	5589799	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	232771	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Natural Resources and Environment
2	Plants and Their Systems
3	Animals and Their Systems
4	Agricultural, Natural Resource and Biological Engineering
5	Food and Non-food Products, Development, Processing, Quality and Delivery
6	Economics and Market Policy
7	Human Nutrition, Food Safety, and Human Health and Well-Being
8	Families, Youth and Communities

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resources and Environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	11%		11%	
102	Soil, Plant, Water, Nutrient Relationships	40%		40%	
104	Protect Soil from Harmful Effects of Natural Elements	4%		4%	
111	Conservation and Efficient Use of Water	4%		4%	
112	Watershed Protection and Management	4%		4%	
121	Management of Range Resources	11%		11%	
123	Management and Sustainability of Forest Resources	4%		4%	
132	Weather and Climate	4%		4%	
133	Pollution Prevention and Mitigation	7%		7%	
135	Aquatic and Terrestrial Wildlife	11%		11%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	17.5	0.0	42.0	0.0
Actual	8.5	0.0	22.6	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
190876	0	460479	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
190876	0	921527	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The SDSU Department of Wildlife and Fisheries Sciences has an established and respected research program.

The SDSU Department of Wildlife and Fisheries Sciences continues to maintain a respected research program. However, the department did not initiate planned Extension programs. The Department continues to provide substantial outreach information to the public and other stakeholders via both publications and personal contacts. Primary topic areas include wildlife habitat management, pond fisheries management, and aquaculture.

2. Brief description of the target audience

- Land managers
- Wildlife and fisheries managers
- Extension educators
- State citizens
- Urban stakeholders

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	200	2000	0	0
2007	0	2000	0	200

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	38	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Research projects in Wildlife, Fisheries Sciences and areas related to the Planned Program

Year	Target	Actual
2007	50	57

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Build on current focus of Wildlife and Fisheries Science Department to address related issues from County Extension Educators
2	Conduct research on South Dakota issues to add to understanding and improving wildlife and fisheries resources
3	Consultations with land and resource managers in support of the overall protection of habitat in South Dakota.

Outcome #1**1. Outcome Measures**

Build on current focus of Wildlife and Fisheries Science Department to address related issues from County Extension Educators

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

No extension appointments were added to the Department of Wildlife and Fisheries Sciences in 2007, and thus no formal programs were initiated with County Educators. However, the Department continues to field many contacts regarding wildlife and fisheries.

What has been done**Results****4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #2**1. Outcome Measures**

Conduct research on South Dakota issues to add to understanding and improving wildlife and fisheries resources

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	46

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The mountain lion population is expanding in the Black Hills of western South Dakota, creating more interactions between lions and humans.

What has been done

SDSU scientists have extensively studied this mountain lion population. Information on movements, behavior, life history, and population dynamics were all determined.

Results

This research has prevented a substantial amount of conflict among user groups with differing desires. While some groups wish to preserve the mountain lions, others want to remove them due to potential danger to humans, pets, and livestock. Because of SDSU research, more is known about this mountain lion population than any other population on the continent. As a result, the state conservation agency was able to institute a hunting season to reduce the population size, while not affecting the long-term viability of the population, creating a reasonable management compromise.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

Outcome #3

1. Outcome Measures

Consultations with land and resource managers in support of the overall protection of habitat in South Dakota.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Because the Extension component was not added to this program, this was not implemented.

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (high fuel prices)

Brief Explanation

The Extension component was not added to this program, as projected in the Plan of Work. SDSU continues to maintain a strong wildlife research program, and offers outreach as a service activity by scientists.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- Case Study

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Plants and Their Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	14%		14%	
202	Plant Genetic Resources	17%		17%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant	21%		21%	
204	Plant Product Quality and Utility (Preharvest)	3%		3%	
205	Plant Management Systems	17%		17%	
211	Insects, Mites, and Other Arthropods Affecting Plants	6%		6%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
213	Weeds Affecting Plants	6%		6%	
215	Biological Control of Pests Affecting Plants	3%		3%	
216	Integrated Pest Management Systems	3%		3%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	29.8	0.0	50.0	0.0
Actual	23.5	0.0	22.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
526334	0	449422	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
526334	0	449422	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Plant breeders, entomologists, and plant pathologists will develop superior varieties with tolerance or resistance to insects and new disease races. Agronomists will evaluate crop management systems and forage systems that are best adapted to South Dakota, including areas with a history of limited growing season moisture. Soil scientists will develop more effective and cost efficient strategies for conserving soils and reducing fertilizer inputs in cropping systems. Entomologists, plant pathologists, and weed scientists will develop more effective and cost efficient means to safely control plant pests while reducing chemical inputs; including IPM and alternative methods. Extension will deliver the resulting research and extension program impacts to the SD Department of Agriculture, SD Crop Improvement Association, SD Corn Utilization Council, SD Soybean Research & Promotion Council, SD Wheat Commission, SD Oilseeds Council, SD Association of County Weed & Pest Boards, SD Weed Commission, and Master Gardeners Association.

2. Brief description of the target audience

All farm producers, agricultural land owners, hobby gardeners, homeowners, and Master Gardeners

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	21346	18600	380	360
2007	16390	16000	95	200

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	32	14	46

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed in SDSU Planned Program Two - Plants and Their Systems

Year	Target	Actual
2007	10	7

Output #2

Output Measure

- Number of Plant Variety Protection (PVP) varieties - Title V registration

Year	Target	Actual
2007	1	3

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Number of farmers learning about new crops, varieties, crop management techniques, forages and biofuels.
2	Number of farmers learning new insect control and IPM management techniques
3	Number of farmers learning new plant disease control and IPM management techniques.
4	Number of farmers learning new chemical, biological, alternative weed control and IPM techniques and pesticide safety.

Outcome #1**1. Outcome Measures**

Number of farmers learning about new crops, varieties, crop management techniques, forages and biofuels.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	3180	7350

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Small grain, corn, and soybean producers have many choices when considering which varieties (hybrids) to plant every year. Annually, a number of crop performance trials are conducted, the data is analyzed, and the results published. Thereafter, a number of presentations are made at extension meetings by specialists and agronomy educators that assist growers to identify varieties or hybrids that exhibit superior agronomic performance.

What has been done

In 2007, the SDSU Crop Performance Testing Program conducted yield trials at 13 winter wheat, eight spring wheat and oat, seven spring barley, and six corn and soybean locations in SD. At each location superior crop varieties and hybrids were identified and reported in two Extension Circulars (EC774 - Small grains and field peas with 2,600 copies; and EC775 - Soybean variety performance trials-2007 results with 2,300 copies and one Agricultural Experiment Station Circular (C253 - Corn: 2007 Precision planted performance trials with 2,450 copies) that were distributed to producers and agri-business clientele. In addition, the soybean (EC775) and corn (C253) results were also printed as a seed guide and distributed to 14,000 subscribers in the Tri-State Neighbor farm magazine.

Results

On average the superior varieties (hybrids) out yielded the other entries in the test by 5 bushels for spring and winter wheat, 8 bushel for barley, and 10 bushel per acre for oats. In soybeans, the superior varieties out yielded other entries in the test by 5 bushels per acre; while in corn the superior hybrids out yielded the other entries by 18 bushels per acre. On average crop producers increased their gross profits by \$51.10(10.22 x 5) per acre for winter wheat; by \$61.85 (12.37 x 5) for spring wheat; \$31.50 (3.15 x 10) for oats; \$34.64 (4.33 x 8) for barley; \$61.30 (12.26 x 5) for soybean; and \$98.64 (5.48 x 18) per acre for corn by planting superior varieties (hybrids) compared to other entries they could have selected from the performance trial information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)

Outcome #2**1. Outcome Measures**

Number of farmers learning new insect control and IPM management techniques

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	3000	4100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The soybean aphid has become a reoccurring and major pest in South Dakota in recent years.

Many soybean growers were uncertain how to scout and determine the threshold values for deciding if it was economical to spray for aphid control.

What has been done

Numerous educational meetings along with the distribution of 2,000 copies of Extension Factsheet FS914A 'Soybean Aphids in South Dakota' were used to education growers on the merits of using threshold values to determine if and when to spray for aphid control..

Results

Based on aphid data, SD producers saved approximately \$32.4 million in production costs by following new threshold guidelines for aphid control.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Number of farmers learning new plant disease control and IPM management techniques.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2000	2450

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A commercial agronomist, hired by a local grower, asked an educator to confirm that a wheat field should be sprayed for aphids. However, the educator thought the problem was disease; therefore, he collected samples and sent them to the SDSU Plant Diagnostic Clinic where it was confirmed the problem was indeed a disease not insects.

What has been done

A total of 515 producers attended the crop clinics, workshops and other educational programs conducted in the Central District and improved their ability to identify pests and take proper management steps.

Results

The actions of one educator and the disease confirmation by the SDSU Plant Diagnostic Clinic saved the producer from applying \$11,000 worth of insecticide that would not have done anything to control the disease problem.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Number of farmers learning new chemical, biological, alternative weed control and IPM techniques and pesticide safety.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1950	2490

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Federal Insecticide, Fungicide, & Rodenticide Act requires that programs be established to protect workers and to provide training and certification for pesticide applicators.

What has been done

Agronomy Educators took the lead in conducting 28 Private Applicator Training/Certification programs in 21 counties to certify or recertify over 1,0550 individuals as Private Applicators, 175 were certified as Commercial Applicators, and 40 Commercial Applicators were recertified for specific categories in 2007.

Results

A post-sprayer calibration workshop survey responses or comments follow:

- o 75% would apply the calibration systems and keep accurate records.
- o 63% would check and replace nozzles
- o 25% would compile an 'emergency kit'.
- o 'I didn't realize there was so much difference in nozzles'.
- o 'Boy was I over applying'. 'I'm going to replace all my nozzles'.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (changes in plant pests)

Brief Explanation

The biggest external factor facing agronomic plant production and profitability is the skyrocketing price of fuel and fertilizer. While the value of crops has increased dramatically, producers are realizing that input prices have also increased substantially.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Other (Increase in biofuel production)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animals and Their Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	18%		18%	
302	Nutrient Utilization in Animals	21%		21%	
303	Genetic Improvement of Animals	3%		3%	
305	Animal Physiological Processes	7%		7%	
307	Animal Management Systems	3%		3%	
308	Improved Animal Products (Before Harvest)	7%		7%	
311	Animal Diseases	38%		38%	
313	Internal Parasites in Animals	3%		3%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	26.3	0.0	48.0	0.0
Actual	17.4	0.0	45.2	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
390299	0	922819	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
390299	0	681266	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Animal scientists will continue to interact with stakeholders and Extension personnel to determine in which areas research efforts should be focused. In a systems approach, SDSU researchers will then develop research trials to address the wide array of challenges our producers face. Once the research is completed, the researchers will work with the Extension personnel in developing a variety of programs to get the information to producers. SDSU will work jointly with other agencies like South Dakota Department of Agriculture, Animal Industry Board, Department of Environment and Natural Resources, and federal agencies including Natural Resource Conservation Service and others in coordinated effort to get the message out in a variety of methods. Extension Veterinary Science activities include outreach to veterinary practitioners and food animal producers and other animal owners. This includes one to one meetings, animal health conferences, participation in professional continuing education efforts of the South Dakota Veterinary Medical Association and Extension newsletters and websites. Dairy Scientists will conduct research in dairy cattle nutrition to develop efficient methods for the utilization of by-products. Dairy Foods research will be conducted to develop newer healthier products via novel processes. Extension Dairy programs will conduct informational seminars and interactive learning opportunities on dairy profitability and nutrition for appropriate producer groups.

2. Brief description of the target audience

All ranchers, livestock producers, dairy producers, poultry producers, processors, and veterinarians in the state, as well as concerned citizens and policy makers. In addition, other state and federal agencies including the SD Department of Agriculture, Animal Industry Board, Department of Environment, and Natural Resources, Natural Resource Conservation Service.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1600	5400	300	270
2007	2890	6400	500	570

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	1

Patents listed

'Methods of Prion Propagation in vitro.' Dr. Alan Young, Department of Veterinary Science, South Dakota State University

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	2	35	37

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed on enhancing sustainable production.

Year	Target	Actual
2007	5	5

Output #2

Output Measure

- Number of research projects completed on dairy foods

Year	Target	Actual
2007	0	2

Output #3

Output Measure

- Number of research projects completed on dairy production

Year	Target	Actual
2007	0	6

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Number of ranchers learning new production techniques
2	Number of farmers using new production techniques
3	Number of veterinarians and producers learning about animal disease.
4	Number of veterinarians and producers changing behaviors to improve the control of animal disease

Outcome #1**1. Outcome Measures**

Number of ranchers learning new production techniques

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	1200

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Prolonged drought in central and western SD has effected ranchers and ranch communities in central and western SD; as well as Native American communities and ranchers. The drought has significantly decreased resources (water and grass), many ranchers have substantially liquidated their herds. While this has led to an abnormal increase in income, this means substantially less income in subsequent years since there will be less calves to sell. Also, much of the range has been over-grazed and it will take a long time for it to recover. Overall, this will have a tremendous impact on those communities since cattle and sheep are the only source of income for the vast majority of the area.

What has been done

A multi-disciplinary Extension and research approach has been taken. Through a series of seminars, newspaper articles, press releases, and one-on-one consultations, ranchers have been given decision tools on how best to manage for long-term survival in the drought. Alternative feedstuffs, different leasing arrangements, new marketing arrangements, and new management techniques like early-weaning and intense-focused culling protocols have all been presented to the stakeholders.

Results

Through these educational programs, ranchers have been able to decrease herd and flock size to a level compatible with the limited resources. They are positioned for future success by being able to retain their elite seedstock for when the drought ends and production can increase. However, for other producers, it was an opportunity to exit livestock production in a manner that allowed them to keep the majority of their equity for new careers or retirement. Also, through research, producers were able to identify the factors in their operation most responsible for profit/loss and were able to adjust and focus on the items having the greatest impact on their ranches.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals

Outcome #2**1. Outcome Measures**

Number of farmers using new production techniques

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	300

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Swine Producers have built sophisticated environmentally controlled barns to increase animal welfare and reduce odor and environmental concerns. However, the ventilation systems are very complex and not all producers can properly run them. This is exacerbated by the high cost of propane. There are 1300 swine operations in SD and swine production is the second largest livestock contributor to the state's ag economy. Over 60% of swine production occurs in a unique group, the Hutterian Society or Hutterites, and they have a distinct need for unbiased information.

What has been done

Extension faculty from SDSU (Ag & Bio Systems Engineering and Animal & Range Science), UNL, ISU, and U of MN created a novel Ventilation Training program. A specially created working model of a swine barn was developed and made portable. It was carried all across the Midwest in Extension programs. The first half day has devoted to classroom training and the afternoon portion was in the model. It was so successful it won the National Pork Board's Excellence and Innovation in Extension award. Other states have developed similar programs based on it. Also, due to producer demand, an advanced ventilation shortcourse was created.

Results

One producer from Huron saved over \$65,000 in one year just in propane costs by properly setting his fans to run in conjunction with his heaters and air inlets. Not only did this lead to economic savings, but it also created a better microenvironment for the pigs and people. Also, veterinarian clinics and feed companies have also sponsored workshops for their clientele.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #3**1. Outcome Measures**

Number of veterinarians and producers learning about animal disease.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	590

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The SD Extension Veterinarian served as the continuing education chairman for the annual meeting of the SD Veterinary Medical Association, during August 2007.

What has been done

Approximately 200 registered veterinarians received 3 days of CE during the annual meeting. Large animal and small animal sessions were held.

Results

The veterinarians in attendance received required CE training for licensure and learned about new disease syndromes such as Porcine Circovirus Associated Disease, BVD virus, and Hardware Disease of cattle.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
311	Animal Diseases

Outcome #4

1. Outcome Measures

Number of veterinarians and producers changing behaviors to improve the control of animal disease

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	100	120

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Porcine Circovirus Associated Disease (PCVAD) has been an emerging disease of the swine industry over the past decade. Improved diagnostic tools were necessary to pinpoint outbreaks.

What has been done

Diagnosticians and researchers worked collaboratively to gain an improved understanding of the various syndromes associated with this disease in our service region. Diagnosticians collaborated with researchers to place useful diagnostic tests in the ADRDL in order to accurately identify affected animals and herds. This information can then be passed on to referring veterinarians and animal owners.

Results

Once producers were accurately identified with the disease, effective vaccination programs were implemented. The impact of PCVAD now appears to be subsiding.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (animal disease outbreaks)

Brief Explanation

Rising livestock feed prices are impacting livestock profitability.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- Time series (multiple points before and after program)
- Case Study

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural, Natural Resource and Biological Engineering

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
401	Structures, Facilities, and General Purpose Farm Supplies	34%		34%	
403	Waste Disposal, Recycling, and Reuse	33%		33%	
404	Instrumentation and Control Systems	33%		33%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	5.3	0.0	4.0	0.0
Actual	6.2	0.0	4.3	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
139596	0	90372	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
139596	0	73463	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct research on livestock facilities, water management and climatic impacts on crop and livestock producers. Extension will conduct informational seminars and interactive learning opportunities for producer groups across South Dakota.

2. Brief description of the target audience

All farm producers in the state

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	200	2000	0	0
2007	200	2050	200	100

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	29	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed on livestock facilities, water management or climatic impacts on crop and livestock producers

Year	Target	Actual
2007	2	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of farmers learning about improved livestock facilities, water management or climatic impact on crops and livestock.

Outcome #1**1. Outcome Measures**

Number of farmers learning about improved livestock facilities, water management or climatic impact on crops and livestock.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	75

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Poor ventilation in swine units is detrimental to productivity and profitability the animals in these building.

What has been done

Extension specialists from South Dakota, North Dakota, Iowa and Minnesota collaborated to present ventilation workshops to swine producers. A portable building that contained all of the ventilation features and equipment typical of large swine confinement building was taken to the workshop sites to allow producers to see the effects of various ventilation strategies.

Results

One hundred twenty swine producers representing more than 500,000 hogs attended the workshop. Surveys at the conclusion of the workshops indicated producers had a higher level of awareness of the causes of poor ventilation, and understood steps to correct problems. Swine producers attending the workshops each estimated an annual return of \$1000 to \$5000 per year per based on increased production efficiency and reduced energy consumption.

4. Associated Knowledge Areas

KA Code	Knowledge Area
401	Structures, Facilities, and General Purpose Farm Supplies
404	Instrumentation and Control Systems

V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

The biggest external factor that effected the outcome of this program is the tremendous shift in the economic paradigm as it relates to food and fuel.Higher input costs for swine production are having a direct impact on production decisions, and profitability.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Time series (multiple points before and after program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food and Non-food Products, Development, Processing, Quality and Delivery

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	40%		40%	
502	New and Improved Food Products	33%		33%	
511	New and Improved Non-Food Products and Processes	27%		27%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	24.0	0.0
Actual	2.1	0.0	26.9	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
47719	0	548205	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
47719	0	380063	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research processes using the latest technology to improve the utilization of by-products for food and non-food products. Connect producers, processors, end users, regulatory officials, economic development professionals, marketing specialists, researchers and extension personnel to integrate the development and delivery of food and non-food products.

2. Brief description of the target audience

- Producers – all types of agriculture.
- Youth Organizations
- Gardeners
- Cottage Industry
- Processors – use products produced in both South Dakota, and neighboring states.
- End Users (includes retail and consumers)

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	50	200	50	50
2007	1560	279000	1450	5600

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	17	16	33

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed on food/non-food products

Year	Target	Actual
2007	1	5

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Numbr of producers/processors/end users working with SDSU for research and/or Extension programs related to the development, processing, quality and/or delivery of food or non-food products.
2	Number of producers/processors/end users using the research and educational tools developed by SDSU and their collaborators to make decisions related to the development and delivery of the identified food or non-food item.
3	Number of producers/processors/end users that have developed and are delivering a product impacts the economic/quality of life for the people of South Dakota.

Outcome #1**1. Outcome Measures**

Numbr of producers/processors/end users working with SDSU for research and/or Extension programs related to the development, processing, quality and/or delivery of food or non-food products.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	25

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

South Dakota has the growing industries of corn ethanol, dairy processing and other food processing. SDSU's research and extension activities worked very closely with the industry in the state and region to solve the current issues in the industries. For example, the corn ethanol industry faces the handling and utilization of DDG and the high energy cost of production.

What has been done

Multi-disciplinary teams conducted research/extension projects to find new ways of using DDG the major co-product from the corn ethanol industry. The projects aimed to use DDG for livestock feed, human food, nutraceuticals, substrates for fermentation for production of innovative polymers, and energy source by gasification/liquification. Scientists and extension specialist also worked with the industry to solve critical issues with ethanol production using cellulose rich materials.

Results

Some projects were finished and promising technologies are being examined. The work also strengthened our working relationships with the industry. The examples were the new Bio Processing Center and the Sun Grant Center are working to address the bio energy issues facing the state, the country and the world.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
511	New and Improved Non-Food Products and Processes

Outcome #2**1. Outcome Measures**

Number of producers/processors/end users using the research and educational tools developed by SDSU and their collaborators to make decisions related to the development and delivery of the identified food or non-food item.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	535

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Those preparing and processing food for the general public must be knowledgeable about safe food handling risks in order to identify the food handling practices that they must change to reduce the risk of foodborne illness.

What has been done

The SDSU Cooperative Extension Service taught Foodservice Manager Sanitation Certification and Recertification courses to 425 foodservice managers/workers/owners/food processors. Courses were also taught to 110 volunteers that serve food at community events. This involves working with schools, nursing homes, hospitals, food processing facilities, and rural areas if the state. One certification course was specifically for Spanish speaking individuals that process and/or prepare food - 25 people participated in this course.

Results

When Foodservice Manager certification classes are taught to all levels of food prepares, over 80% pass the exam with a score of 75% or higher. 100% of participants identify at least one safe food handling practice they intend to change.

4. Associated Knowledge Areas

KA Code	Knowledge Area
511	New and Improved Non-Food Products and Processes
501	New and Improved Food Processing Technologies

Outcome #3

1. Outcome Measures

Number of producers/processors/end users that have developed and are delivering a product impacts the economic/quality of life for the people of South Dakota.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Adding value to a food product through a processing or preparation process requires working through a regulatory process and gaining knowledge on the risks and safe food handling practices that must be implemented to reduce the risk of foodborne illness or other related foodborne safety issues, such as food allergies.

What has been done

Fifteen specialty food processors/preparers utilized the information and expertise through the SDSU Extension Service, Nutrition Food Science and Hospitality Department and SDSU testing labs to assist specialty food entrepreneurs. SDSU Extension Food Safety Specialists has become a food processing authority for acidified foods. SDSU Graduate Student tested a marketing tool to assist growers in direct marketing to restaurants. Extension Educators provide a direct contact in the field to link to expertise on the SDSU campus.

Results

Food entrepreneurs utilize the information provided to guide them through the process of meeting the regulation requirements through the state of SD and the FDA. This is a growing need. And future programs are being developed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
511	New and Improved Non-Food Products and Processes
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

The cost of raw product used in the development of new food and other products is a major determinant in the overall viability of a product.In addition, rising food costs impact consumer decisions regarding the purchase of a new product, versus the purchase of an existing/known product.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #6

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economics and Market Policy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	37%		37%	
602	Business Management, Finance, and Taxation	9%		9%	
604	Marketing and Distribution Practices	9%		9%	
606	International Trade and Development	9%		9%	
607	Consumer Economics	9%		9%	
608	Community Resource Planning and Development	9%		9%	
610	Domestic Policy Analysis	18%		18%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	10.5	0.0	18.0	0.0
Actual	13.0	0.0	6.2	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
292012	0	126771	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
292012	0	125601	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research will be conducted in priority areas of resource allocation and economic development, policy analysis, financial analysis, renewable and value-added agriculture, and marketing alternatives. Extension will provide training in formal and informal venues. Research findings will be extended to the appropriate audiences.

2. Brief description of the target audience

Agri-business persons in South Dakota and the Northern Plains Region. Managers, extension educators and professional colleagues will all benefit from the program activities.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1500	10000	100	500
2007	1500	10000	100	500

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	17	12	29

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension Educations Trained

Year	Target	Actual
2007	50	63

Output #2

Output Measure

- One-on-One Management Consultations

Year	Target	Actual
2007	30	300

Output #3

Output Measure

- Completed Research Projects

Year	Target	Actual
2007	5	3

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Number of farmers calculating production costs and returns to storage.
2	Number of agri-business persons aware of marketing strategies and crop insurance and farm program alternatives.
3	Number of agr-business persons aware of their financial positions and farm business plan components.
4	Number of farmers employing marketing strategies and allocating scarce resources effectively.
5	Number of agri-businesses with improved profitability.

Outcome #1**1. Outcome Measures**

Number of farmers calculating production costs and returns to storage.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	200

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Commodity price increases and food-fuel trade-off concerns contribute to food price increases.

What has been done

Assess market effects of commodity prices increases and CRP land conversions; teach risk management tools and strategies; and assess policy alternatives

Results

Increased knowledge among agricultural and rural decision makers on a broad set of issues, policy aspects, and opportunities related to commodity price increases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
610	Domestic Policy Analysis
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #2**1. Outcome Measures**

Number of agri-business persons aware of marketing strategies and crop insurance and farm program alternatives.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	200

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Crop insurance provisions related to mycotoxins

What has been done

Created awareness

Results

producers did not compromise their crop insurance coverage

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
602	Business Management, Finance, and Taxation

Outcome #3

1. Outcome Measures

Number of agr-business persons aware of their financial positions and farm business plan components.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Estate planning has been a major educational emphasis, allowing farm assets to be distributed in a planned manner to the next generation.

What has been done

SDSU conducted multiple workshops on intergenerational business transfer.

Results

30 farm families developed transition plans which will transfer business property to the next generation with minimal tax and transfer fees.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #4

1. Outcome Measures

Number of farmers employing marketing strategies and allocating scarce resources effectively.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Unusually high commodity and input prices, combined with the ability to market farther into the future have created new management opportunities for farm and ranch families.

What has been done

SDSU conducted producer and agribusiness workshops which focused on costs and benefits of employing marketing strategies with the long term.

Results

Producers weighed their crop insurance coverage and input price risks against higher price levels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #5

1. Outcome Measures

Number of agri-businesses with improved profitability.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	650

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Relatively high input costs associated with relatively high returns have created a volatile, high risk

What has been done

SDSU conducted multiple workshops covering crop enterprise budget.

Results

Agricultural producers were able to choose optimal crop mix, and optimal feeding and retaining strategies

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Public Policy changes
- Government Regulations

Brief Explanation

Rapidly changing economy as it relates to fuel, fertilizer and other agricultural production input prices.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- During (during program)
- Case Study

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Human Nutrition, Food Safety, and Human Health and Well-Being

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
702	Requirements and Function of Nutrients and Other Food Components	33%		33%	
703	Nutrition Education and Behavior	34%		34%	
722	Zoonotic Diseases and Parasites Affecting Humans	33%		33%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	19.3	0.0	4.0	0.0
Actual	33.1	0.0	5.8	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
742139	0	119536	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
742139	0	93945	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Meat science research will be conducted on short preparation times, products with healthy nutritional profiles, soy phytochemicals from the state point of how consumption of soy contributions to reduced health risks. Research will also be conducted on aspects of obesity prevention including changing eating behavior (targeting fruits and vegetables). Research will be both laboratory (bench science) and social science in nature.

Extension will conduct informational seminars, interactive learning opportunities, group classes and provide printed curriculum to youth audiences (4-H, schools, after school programs, head start and child care centers) and adult audiences (worksites, pre-formed groups, teachers, parents, senior citizens) as well as community based groups (licensed food service establishments, temporary food stands, mobile food units and community based organizations/agencies/churches). Educational programs will include farm food safety on salmonella in varied beef production systems.

2. Brief description of the target audience

•All consumers in the state or region. For some studies, a more targeted audience such as young adults. •Small children and youth •Adults and senior citizens •Low income citizens •Targeted business owners •School personnel •Extension field educators •Health care professionals •Educators and other professionals who work in nutrition education, foodservice, etc. •Tribal colleges in S.D. and youth who attend reservation schools

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	2050	7000	2050	7000
2007	24069	279500	7973	26912

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	7	7	14

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects

Year	Target	Actual
2007	0	0

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Increase in soy foods production and consumption by South Dakota citizens, by percentage of the population.
2	Increase in fruit and vegetable consumption, by percentage of the population.
3	Decrease in obesity rates by percentage of the population.
4	Number of participants demonstrating ability to choose or prepare food with reduced fat and/or calories.
5	Number of participants increasing the number of minutes spent daily in physical activity.
6	Number of businesses engaged in a worksite wellness program.
7	Number of food service managers implementing a safe food handling training program for employees, thus increasing the retention rate of training participants in the food service industry (workforce).
8	Increased number of food safety programs for volunteers cooking for large groups and temporary food stands.

Outcome #1**1. Outcome Measures**

Increase in soy foods production and consumption by South Dakota citizens, by percentage of the population.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	649

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

Lessons as part of programming with families at school educational programs, Healthy Foods programs with farm families

Results

Participating families are being exposed to new healthy food choices and as a result to the new foods the local grocery store has been asked to change what they sell and to include the healthier food choices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2**1. Outcome Measures**

Increase in fruit and vegetable consumption, by percentage of the population.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	3176

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

Extension educational programs have been offered in the following areas: Child Care Providers Feeding Children - My Pyramid; Education on New-Triton - Basics of Nutrition; Education on Portion Sizes & Ways to Increase Fruit & Vegetables in the Diet; Fit From the Start Programs at Grocery Stores; Month Long Fruit & Vegetable Increase Consumption Community Campaigns; Healthy Snacking Programs for Youth/Teens & Day Care Providers; What's For Dinner Programs for Families

Child Care Conferences - workshops for providers focusing on feeding children more fruits & Vegetables; Buddy's Healthy Diet - TV spots on South Dakota Public Broadcasting focusing on eating more fruits & vegetables each day; Head Start Parents - Workshops on Feeding Healthy Children; Kid Quest

Dining with Diabetes - conducted through local hospital; Adult and Youth Education; Senior Fruit and Vegetable Project - Congregate Meal Sites

Results

- 33% of Head Start Parents report that their children are eating more fruits & vegetables
- 25% of parents & children are selecting healthier food choices when eating on the run including fruits & vegetables
- Kid Quest participants - beginning survey 56.8% of participants reported that they consumed fruits & vegetables 3 or less times a day. An increase of their fruit & vegetable consumption by 20.4% resulted at the end of the program.
- Child Care Providers are serving more fruits & vegetables to children in their care.
- 30% of EFNEP Adult Participants are eating more Fruit and Vegetables
- 55% of EFNEP Youth participants now eat a variety of foods, including fruit and vegetables.
- 29% of seniors at congregate sites reported eating 1 serving of fruit and 10% reported eating 1 serving of vegetables before education; after education 39% reported eating 2 servings of fruit and 28% reported eating 2 servings of vegetable.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3

1. Outcome Measures

Decrease in obesity rates by percentage of the population.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	340

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

Community Health Challenge over 3 months; Health & Wellness Lessons 10 Week Series; CYFAR Programming at McLaughlin & Brookings

Results

- 35 teams participated in the community health challenge (210 individuals) walked 83,192.92 miles, equal to 3.3 times around the earth. Participating individuals have now incorporated new health habits into their lives for lifestyle & behavior change.
- Health & Wellness Series results
 - 80% of participants now exercising at least 3-5 times a week
 - 70% of participants are eating more fruits & vegetables
 - 50% of the participants families are eating more fruits, vegetables and including more fiber in their diets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

Number of participants demonstrating ability to choose or prepare food with reduced fat and/or calories.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	3785

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

Programs focusing on eating healthy, selecting healthier food choices, snacking healthy, What's for Dinner, My Pyramid, Reducing Fat in Diet, Understanding Food Labels Portion Size. Also, workshops/Hands on Lessons to Senior Citizens, Youth, Habitat Home Buyers, Youth on Indian Reservations, Parents, Child Care Providers Head start Parents and others. Reading Roundup lessons for adults & parents. Kid Quest Food Fun Programs.Youth and Adult Education, and Senior Health Health Project

Results

Youth participating in Reading Roundup Lessons learned about health and practiced what they learned by making better food choices. 60% of What's For Dinner participants incorporated use of low fat cooking methods as well as including healthier foods into their food selections. 35% of Parents of Kid Quest Participants reported that their children were eating healthier including less fat & sugar.

Participants of the Family Meal Programming reported that by increasing the number of family meals they eat at home they were able to control the amount of fat their families consumed. Head Start Parents reported that 30% of kids are eating healthier snacks & 25% of parents reported that children select healthier low fat foods when eating on the run. 25% of EFNEP adult participants reported that they are selecting low-fat food choices. 54% of EFNEP Youth Participants increased the ability to select low-cost, nutritious foods. FNP Heart Health Series showed increase in the intent to change. Prior to education, 55% sometimes ate low fat dairy and 64% sometimes ate lean meat. Following education, 85% reported intent to use low fat dairy and 88% reported intent to eat lean meat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #5

1. Outcome Measures

Number of participants increasing the number of minutes spent daily in physical activity.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	500	695

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

- Child Care Providers Training
- Head Start Parents Creating Family Fitness Plans
- Community Senior Citizens Health Club Started
- Elementary School Family Fun Night Focusing on Family Fun & Activity
- CYFAR Programs in McLaughlin & Brookings
- Health & Wellness 10 Week Program
- Nutrition Expedition Program
- Walking Program for Youth
- Pyramid Between Pages Programs with youth
- Youth and Adult Education Programs.
- SD Seniors Heart Health Series

Results

- o Increase Children's Physical Activity while in Day Care Facilities
- o 80% Health & Wellness participants are doing physical activity 3-5 times a week following the programming.
- o Parents are involving children in walks and other forms of exercise to increase fitness and provide children with a positive role model experience.
- o Walk step challenges were held
- o Families learned new ways to get out and be active as a family.
- o 13 Senior Citizens have formed a health club and are increasing their physical activity as a result
- o 60% of seniors reported exercising 30 minutes a day prior of the series, and 74% reported exercising 30 minutes a day after the heart health series.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Number of businesses engaged in a worksite wellness program.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

- Educators worked with over 30 businesses to establish worksite wellness programs
- Many additional businesses were approached to participate - over 90 in one district alone.
- Five \$2,000 mini-grants were awarded to businesses in rural communities that are workgin with CES Worksite Wellness consultants
- A total of 17 CES trained consultants.

Results

- One business eliminated the candy jar and saved 300.00 per month as well as decreasing the sugar consumption of employees and customers.
- A Dr. stated that employee health screenings have shown an increase in health improvements with in the first 6 months of a Worksite Wellness program
- Walking step programs have helped employees get into walking routines and helped make them aware of exercising regularly
- Fruit is now eaten at breaks when it is made available
- Bank set up wellness committee and sponsored wellness walk.
- Schools are offering employee's wellness education and implementing health & wellness challenges - winners are rewarded for success and negotiations are being made for a day off with pay as incentive for successful completion of the challenge.
- Challenges were implemented for Weight-loss, walking & healthy eating
- Increased health screenings for employees
- Office candy jar removed and but Juice & Water in refrigerator in break room added.
- Wellness & Cholesterol programs offered.
- Pre & Post test results in one program show that physical activity is increasing and the company has reported a significant savings in health care claims since starting their work site wellness program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #7

1. Outcome Measures

Number of food service managers implementing a safe food handling training program for employees, thus increasing the retention rate of training participants in the food service industry (workforce).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	425

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Gaining knowledge is critical to identifying and implementing safe food handling practices that reduce the risk of foodborne illness from foodservice settings. In SD over 200,000 people suffer from foodborne illness. SD also ranks above the national average per 100,000 population in foodborne illnesses incidences. Reducing the risk, reduces the incidence.

What has been done

- ServSafe was taught to High School students in the Mitchell and Brookings. Over 20 youth became ServSafe certified. This allows them to enter this industry in their community with the tools needed to maintain safety of the food.
- Over 150 School Lunch Program personal participated in ServSafe Certification training taught by Cooperative Extension Staff.
- 230 Foodservice staff and managers were certified through ServSafe or maintained their SD Foodservice License through a recertification course. These courses are taught in rural areas of South Dakota to underserved audiences.
- Spanish ServSafe course was taught to 25 foodservice workers, managers, owners that have English as a second language.

Results

- When foodservice manager certification classes are taught to all levels of food preparers, over 80% pass the exam with a score of 75% or higher.
- 100% of participants identify at least one safe food handling practice they intend to change.
- From follow-up evaluations, 75% implemented a safe food handling practice identified from the training course.

Examples of safe food handling practices adopted:

- * Implementation of a program to train staff.
- * Using recommended cooking, cooling, holding, reheating temperatures.
- * More vigilant with hand washing.
- * Using sanitizers effectively
- * Develop a cleaning schedule.
- * Implement techniques that cool and reheat foods quicker.
- * Calibrate and use a thermometer correctly.
- Youth that obtained ServSafe certification enter the workforce with the demonstrative knowledge and credentials that are needed to fulfill the duties required in a foodservice operation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #8

1. Outcome Measures

Increased number of food safety programs for volunteers cooking for large groups and temporary food stands.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	445

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

- Preparing and serving food to large groups requires safe food handling practices that are different from what is often used when preparing for a family. Gaining knowledge critical to safe food handling reduces the risk of foodborne illness.

What has been done

- Food Safety Training for youth working in summer 4-H Concession Stands
- Food Safety Training for Community Volunteers working at local Rodeo Concession Stands
- Training for Youth & Adults working at community festivals - state inspectors said they were pleased with the food safety improvements and would not need to be present as long as Extension is providing this training to the volunteers.
- General Food Safety Updates for Health Care Facility Temporary Staff
- Serving Food Safely in SD programs to persons who volunteer to prepare and serve food at various functions
- Importance of Hand Washing and Food Safety for Rural Community Volunteers

Results

More participants feel confident they know how to use and calibrate a meat thermometer
Participants have a better understanding of the department of health regulations
Changes in how crock pots are used - now used for hot holding only in many stands.
Increase in use of sanitizing solutions
Food is stored, prepared, held and cooled safer.
Participants have better understanding of cooking temperatures for meats and reheating foods.
Thermometers are now used for cooking and cooling of foods
Volunteer hands are being washed more often and correctly
Food Safety posters are used in the locations where the volunteers are working as a reminder to serve safe food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Appropriations changes
- Public Policy changes
- Competing Public priorities

Brief Explanation

Price of food.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Families, Youth and Communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	33%		33%	
802	Human Development and Family Well-Being	17%		17%	
803	Sociological and Technological Change Affecting Individuals, Families and Communities	33%		33%	
805	Community Institutions, Health, and Social Services	17%		17%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	59.5	0.0	10.0	0.0
Actual	55.0	0.0	3.8	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1232150	0	77295	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1232150	0	69613	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research will be conducted on rural low income families, rural communities, premarital education with longitudinal follow ups, and financial saving behavior. Research will be social science in nature. Census data will also be available to communities.

Extension will conduct informational seminars, interactive learning opportunities, group classes, and provide printed curriculum to youth audiences (4-H, schools, afterschool programs, head start and child care centers) and adult audiences (senior citizens, community organizations, parents, teachers, others) while also working with community based groups (city councils, community development groups, city councils).

2. Brief description of the target audience

- Rural communities in South Dakota.
- Extension educators
- Community planners and developers
- Educators and other professionals who work in social services including welfare programs targeting low-income audiences.
- Tribal colleges in S.D. and families who reside on the reservations
- Youth
- Adults
- Senior citizens
- Targeted business owners
- Low income citizens

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	3000	7000	2000	5000
2007	8543	221440	2796	25600

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed

Year	Target	Actual
2007	1	0

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Number of participants who have reduced their debt
2	Number of participants who have increased their personal savings
3	Number of child care professionals who provide more stimulating environments and/or activities for the children they care for.
4	Number of participants reporting improved parent-child communication
5	Number of families who report making changes in family elder care as a result of participating in an Extension program.
6	Number of youth participating in math, engineering or science related activities to further develop workforce preparation skills.
7	Number of youth that were engaged as partners in community civic activities with an adult.
8	Number of communities that were engaged in poverty reduction and/or leadership development activities that lead to the development of a strategic plan for action.
9	Decrease in divorce or domestic violence among South Dakota couples who received premarital education, by percentage of the population.
10	Increase in low-income family self-sufficiency, by percentage of the population.
11	Number of communities reporting an increase in rural community vitality (population stability, economic indicators)

Outcome #1**1. Outcome Measures**

Number of participants who have reduced their debt

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	300	416

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Families are carrying more debit load now than ever before & with rising cost of goods the debit keeps increasing. Bankruptcies continue to climb

What has been done

- o Consumer education on Pay Day Loans & how much they actually cost
- o Back to school budgeting education
- o How to cut food costs
- o Money management/Budgeting Education
- o Money Matters Programs
- o Piles to Files - Organizing Bills, Budget & Financial Papers.

Results

- o Participants learned how to track income & expenses to create a budget
- o Participants learned ways to save for what they wanted rather than to borrow money & what it costs to borrow money from a Pay Day Loan Business
- o Participants learned they had options to use to save money, budget and achieve their goals while reducing debit.
- o 58% of the 36 youth participating in the Money Matters program have started to track their expense & 56% are now using a budget with 72% now taking steps to reduce their debt

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2**1. Outcome Measures**

Number of participants who have increased their personal savings

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	300	1100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

families who have their financial papers in order are able to withstand emergencies and save finances because they have their financial papers in order as well as having a set to grab and go if they need to leave their home in an emergency situation.

What has been done

- o Learned what was needed to put financial papers in order for personal use and in emergency situations
- o Medicare Part D - Consumer Education so Seniors can save money

Results

- o 93% of 1,100 participants learned what was needed to get their financial papers in order - of those 12% completed the task & organized their personal papers, 27% are updating their papers and organizing and 62% are in the beginning stages of getting papers in order.
- o Total \$ saved by those using consumer skills and changing Medicare Part D Plans - 1128 persons helped and a total savings of \$231,688

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

Number of child care professionals who provide more stimulating environments and/or activities for the children they care for.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	300	545

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

On average South Dakota children spend 45 - 50 hours in child care each week. Many of the child care providers are certified however many are not and ensuring the quality of the care that children receive is very important for working parents (SD has high number of working mothers not sure of exact stat on this)

What has been done

- o Child Care Conference in Mitchell & Yankton -Trained providers on Social & Emotional World for Children how to support in child care - Preparing center & children for emergencies, Feeding Healthy & Active Children

Results

- 100% of the 205 Child Care Providers indicated their knowledge to Child Care had increased.
- 48% of the 205 providers strongly agreed that they know the five emotional wellness indicators for social/emotional learning for children as a result of the training.
- 81.7 % of the 205 providers said they would use the new tools they learned to help children express their emotions.
- 89% of the 205 providers became more comfortable with how to incorporate physical activity into their daily routine for children in their care.
- 96% of the 205 child care providers learned new ideas to teach Character Education to the youth in their care.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
801	Individual and Family Resource Management

Outcome #4**1. Outcome Measures**

Number of participants reporting improved parent-child communication

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	4931

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Parenting is one of the biggest challenges that families face. Communication is key to a good parent child relationship.

What has been done

- o Bright Start Newsletter & Family Evaluation - Evaluation of families receiving the newsletter.
- o Peace Making More Than Hammers & Nails Programming & train the trainer sessions for educational professionals, parents & volunteers who work with youth. - Some of the trainings were to train educators from other states to deliver the program in their Extension Service.
- o 21 parents participated in parenting classes where they learned skills to be better parents including communication skills.

Results

- o The education through the newsletter influenced parents behaviors with their children - 71% of parents feel they are a more knowledgeable parent, 51% are reading to their children now and or more, 42% have more confidence in their parenting skills as a result of the education.
- o 37% of the 310 Parents & participants are aware of the link between people & things in conflict resolution
- o 42% of the 310 participants/parents understand that communication skills are taught & that how youth respond to conflict depends on how they have been taught communication skills.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
801	Individual and Family Resource Management

Outcome #5**1. Outcome Measures**

Number of families who report making changes in family elder care as a result of participating in an Extension program.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	275

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

South Dakota has an increasing number of seniors and family members who provide various levels of care for them.

What has been done

- o Aging Healthy Happy & Wise - Program/conference targeted to seniors & their care givers. - The conference focused on geriatric strengthening, hearing loss, available senior services/resources, mind aerobics, organizing important financial papers, & basic estate planning along with many educational booths including - medical screenings, educational resources for families & information on issues facing seniors & their families.
- o Senior Resource Fair for Seniors & their Families

Results

- o 44% of the 75 persons attending learned about the resources that Extension has to help them and will use as a result of the program.
- o 80% of the 75 persons attending will use the stretch bands to for low impact exercises & to improve bone & joint health for better mobility.
- o 62% of the 75 persons will use the information to help keep their brain or family members brain sharp.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
805	Community Institutions, Health, and Social Services
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities

Outcome #6

1. Outcome Measures

Number of youth participating in math, engineering or science related activities to further develop workforce preparation skills.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	1991

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Math and science are educational building blocks of education.

What has been done

- o Hands on educational opportunities in afterschool programs, school classrooms & other workshops covering the following areas - robotics, GPS, aerospace, rocketry, bridge building & forestry
- o Regional Career Fair for 300 students who worked on job interviews, job prep skills as well as career exploration
- o 30 youth reached through a six week Invent It Workshop where youth learn to be entrepreneurs & business skills.
- o Women In Science Career Day for 8th grade girls 335 youth participated

Results

- o Youth learned how to use GPS units and have now begun doing geo caching.
- o Youth learned how to program robots & increased their interest in science & technology.
- o Youth learned how to identify range plants native to SD
- o Youth learned the science behind launching a rocket
- o Youth learned the math skills to build bridges - how to do the calculations to keep it sturdy and stable.
- o 61% of the 300 students participating in the career fair will use the information they learned as they make career choices & financial decisions.
- o 87% of the 30 youth participating in Invent It improved their knowledge of business skills, 91% showed an increased attitude to be an entrepreneur at some point in life, S2 parents reported that youth were working on starting small businesses as a result of the workshop
- o Youth participating in Science Career Day increased their knowledge of the vast number of career options that are open to them in the SD area.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities

Outcome #7

1. Outcome Measures

Number of youth that were engaged as partners in community civic activities with an adult.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	75	769

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Community service is a pillar of citizenship.

What has been done

Many community service projects across South Dakota - examples - planting trees & flowers, Keeping SD Clean, Flood Cleaning Supplies, Leadership - Toy Drives, Homeless Shelter Supply Drives, Food Pantry Drives, Christmas presents for children & families in need, Military donations for solders & their families, blankets for the homeless, caps & coats for children & families in need, Toy drives for needy, community clean up days, work with seniors in nursing homes,

Results

Youth gain live skills & increase their self worth because of the ability to help others and the interaction with caring adults.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #8

1. Outcome Measures

Number of communities that were engaged in poverty reduction and/or leadership development activities that lead to the development of a strategic plan for action.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	34

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

rural communities are declining and poverty rates are increasing - with leadership & poverty education citizens in these rural communities gain skills to equip them to motivate the grater community to take action to reduce poverty and grow their community for the future.

What has been done

- o Creating Value Added Community 10 series workshop with 7 communities - created strategic plans to address issues communities are facing.
- o 24 Horizons II Communities - working on creating strategic plans for the future
- o Original 3 Horizons Communities - working on original strategic plan and went through a process to update & create new to continue change.

Results

Communities are changing and growing for the future - community residents have hope - Poverty issues are discussed and worked on by community members where they were ignored prior to this work. Grants are being obtained to help community residents work on poverty reduction & to help the community grow and prosper for the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

Outcome #9

1. Outcome Measures

Decrease in divorce or domestic violence among South Dakota couples who received premarital education, by percentage of the population.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Families provide the emotional fabric for communities.

What has been done

Continued character training via Character Counts!

Results

Young people learn communications and social skills issues that lead to stronger relationships.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #10

1. Outcome Measures

Increase in low-income family self-sufficiency, by percentage of the population.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increasing food and energy costs represent increasing personal budget components. Managing food costs through safe and effective preparation and storage help control costs of low-income families.

What has been done

Lessons as part of programming with families at school educational programs, Healthy Foods programs with farm families

Results

Participating families are being exposed to new healthy food choices and as a result to the new foods the local grocery store has been asked to change what they sell and to include the healthier food choices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #11

1. Outcome Measures

Number of communities reporting an increase in rural community vitality (population stability, economic indicators)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

rural communities are declining and poverty rates are increasing - with leadership & poverty education citizens in these rural communities gain skills to equip them to motivate the grater community to take action to reduce poverty and grow their community for the future.

What has been done

- o Creating Value Added Community series workshop created strategic plans to address issues communities are facing.

Results

Communities are changing and growing for the future - community residents have hope - Poverty issues are discussed and worked on by community members where they were ignored prior to this work. Grants are being obtained to help community residents work on poverty reduction & to help the community grow and prosper for the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

Rising fuel and transportation costs are causing bedroom community residents to consider moving to communities in which they work, rather than commuting, threatening smaller communities that already struggle to exist.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Case Study

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}